

SECOND EDITION.

Tuberculosis;



OR,

HOW CONSUMPTION
ARISES

FROM

FLESH EATING.

A CAUSE OF CONSUMPTION.

BY

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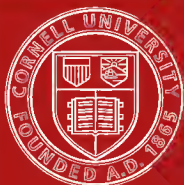
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TUBERCULOSIS,

OR

FLESH-EATING A CAUSE OF CONSUMPTION.

*WITH AN APPENDIX RELATING TO THE OBJECTIONS RAISED
AT THE SANITARY CONGRESS, 1892, BY*

SIR CHAS. CAMERON, SIR THOS. CRAWFORD AND PROF. RUFFER.

BY

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Preface.

FEELING so strongly that the curse of consumption was so intimately interlinked with wrong living, and especially wrong eating, I tried to find out how far facts would bear out this theory.

Starting with the great Glasgow case of 1889, I found that the farther I went, the more did the evidence emphasise the truth of my position.

I do not venture for a moment to maintain that flesh-eating is the sole cause of consumption, or those other diseases which spring from the presence of the specific bacillus within the system. All I have tried to show is that there is an unbroken chain of evidence to prove that a relation does exist between them, *i.e.*, not that flesh-eating is the sole cause, but that it is an important factor in the causation of consumption.

If the consideration of the great risk that is run by eating the flesh which is supplied to our markets will lead readers to weigh the claims of Vegetarianism, and adopting it from health reasons, bring them at length to the realisation of the true position of man in nature and his ethical relation to his fellow creatures, I shall be abundantly satisfied.

JOSIAH OLDFIELD.

Oriole Hospital, Loughton,
June, 1897.

Tuberculosis.



DISEASES are produced in a great number of ways, but the chief methods of propagation are,

1stly, By the INHALATION of disease germs into the lungs with the air breathed, and thence by the blood stream throughout the body; and

2ndly, By the INGESTION of disease germs, together with the food eaten into the stomach and intestines, and thence by osmosis or by the absorption by the lacteals and lymphatics, or through some abrasion of the mucous membrane by a species of inoculation, into the lymphatics or the blood stream and thence over the whole body.

A number of diseases are propagated in other ways, but it seems probable that these two modes alone—with perhaps the exception of that most serious form of all

disease propagation, I mean direct inoculation of disease into the system, which is within the power of every one to avoid—are sufficient to account for an exceedingly high percentage, of the diseases which are spreading around us.

Of these two causes of disease, I believe ingestion to be far the more serious, for a number of reasons, of which the simplest perhaps is the fact which is well known to the medical profession, that a person may go with practical impunity into the presence of contagious disease if he is careful to avoid swallowing his spittle and does not eat or drink anything while exposed to the infected atmosphere.

The fact of inhalation too is difficult to separate from ingestion, because although the origin of the disease may be put down to inhaling the germ-laden air, it is almost impossible to say that none of the saliva was swallowed, and therefore in the majority of cases the possibility of ingestion has also to be taken into calculation ; whereas there are many absolutely recorded cases where ingestion has been the sole possible cause, as in the case of diptheria communicated to people living miles away by means of milk. There are two serious modes, therefore, of disease propagation, viz. (1.), inhalation ; (2.) ingestion ; and of these two the latter is far the more serious.

The discovery of a cause renders the search for a remedy much more simple, and so if disease comes in through inhalation and ingestion, its entrance can be prevented by ceasing to inhale and ceasing to ingest. And when we consider for a moment what an enormous loss—money loss—there is to the community by loss of labour through disease, not only of those diseased, but of those engaged in ministering to the diseased; when we reflect how terribly the sum of human happiness is diminished by disease; when we think that one man diseased means too often a legacy of misery to children and children's children, we can in some measure estimate the change that would come over the scene if 80 per cent. (or even half that amount) of disease were terminated in our midst.

To stop breathing and eating altogether is a remedy perfectly simple in theory, impossible however in practice. If we stop breathing our blood would soon become so carbonised that we should die of asphyxia, if we stop eating we should soon fail by exhaustion. Since, however, the evil lies, not in the air breathed or in the food eaten, but in the disease germs which accompany the air and the food, the same immunity will be obtained by ensuring the purity of the air and the food.

The next remedy that suggests itself therefore is the

breathing *only* pure air and eating *only* pure food. When we consider them, however, we find that both these conditions are impossible in practice. All those whose occupation takes them into the presence of sickness are often breathing impure air ; doctors and nurses, sisters and patients, are constantly breathing air tainted by the effluvia, excrement and sputa of those suffering with disease. Many occupations, such as those of file cutting, painting, manufacture of certain chemicals, etc., also entail the constant breathing of impure air ; while dwellers in slums and alleys are always more or less in an atmosphere laden with germs of disease.

The great point which characterises the dwellers in a vitiated atmosphere, however, is the recognition of the danger, and the attempt on every available opportunity to escape from this danger, which is manifested in the rush for a day to the country or the seaside, or a ride on an omnibus, or even a walk in the park.

With regard to food, which we have seen is a still more important thing than air, we must apply the same principle. We cannot live without eating, neither can we always ensure that our food is free from impurity, but we can aim at avoiding food which is manifestly diseased, and if we cannot altogether escape risk we can at any rate avoid touching those forms of food which are specially liable to disease, unless they hap-

pen to be *necessary* ones, in which case we should have to bear the burden in the best way possible.

I purpose showing, with regard to the special disease under consideration—Tuberculosis—that flesh food is a food which (1), as a fact, is diseased to an enormous extent, and (2) is not a necessary food; all arguments therefore point to the avoidance of it as an article of diet.

Amongst the terrible diseases which curse humanity, Tuberculosis is perhaps the most terrible; there are others which may be more painful or more rapid, but none which are more hopeless and more pathetic, and yet Tuberculosis in one of its varied forms—either consumption of the lungs or Scrofula of the joints or glands, or caries in the bones or Lupus in the skin, Mesenteric wasting or tubercular water on the brain—is one of the most common diseases, so that in some way or another it affects, or has affected, every other person we meet.

How does Tuberculosis originate? Both by inhalation and by ingestion, and herein I would draw attention to the necessity of preventing the exhalations of men and animals being again breathed in. To prevent this we must consider a consumptive person and a consumptive animal as at once one suffering from an infectious disease and so one that needs to be isolated.

Wherever a consumptive person expectorates (and this they do constantly), or a consumptive animal dribbles its saliva, there is at once a serious source of infection, because though harmless while wet, yet immediately it dries it becomes pulverised and may be carried by the least wind to mingle with every particle of dust, and so be inhaled again.

Thus the house in which a consumptive person lives, or the cow-house in which a single tuberculous cow is stalled is a constant source of danger to other men and animals living under the same roof.

But however serious may be this mode of propagation of Tuberculosis, it is not nearly so serious as that of the ingestion of the bacilli of Tuberculosis.

It must not be supposed that because the seat of Tuberculosis is usually the lungs that therefore it is caused chiefly by inhalation, because the experiments of Dr. Burdon Sanderson show that even where the bacillus is introduced by inoculation, *i.e.*, by subcutaneous injection, it at once locates itself and manifests its energy in the lungs. And in a research by Professor McFadyean and Dr. Woodhead they found that in 127 cases of Tuberculosis in children, it was the mesenteric glands which were affected in 100 cases, and these would be almost certainly reached through the organs of alimentation. And we may conclude that in these

cases the disease was introduced by the milk from tuberculous animals.

Now with regard to adults, attention should be carefully drawn to the correlated facts that

(1) Tuberculosis exists in men to an enormously high percentage.

(2) Tuberculosis may be communicated by ingestion of tuberculous food.

(3) Animals used for food are, as a fact, infected with tubercle to an enormously high percentage.

(4) It is practically impossible to detect the disease when the meat is cut up and offered for sale.

(5) Tuberculosis in man may therefore be set down as arising in a high percentage of cases from the ingestion of tuberculous meat.

(6) And finally, flesh is not a necessary part of the diet of man, and therefore in the face of the dangers with which its use as a food is connected, it is not less than suicidal to advocate an increase in its consumption, whereas the soundest policy is to agitate for its entire disuse under the existing circumstances.

THE BACILLUS TUBERCULOSIS.—

The *Bacillus Tuberculosis*, called so from its rod-shape, (*Bacillus*=a little rod), is a micro-organism discovered by

Koch in 1887, about 1-8,000th to 1-10,000th of an inch in length, and about 1-50,000th of an inch in breadth, *i.e.*, it would take some thousands put end to end to reach across the eye of a needle. This micro-organism is of such vitality that it can stand a temperature of 107° for several weeks, and even one of 212° for some little time (say less than sixty minutes), before it is destroyed, while as to the spores it is at present impossible to say what amount of heat they can stand, so difficult is it to ensure their destruction; certainly the ordinary mode of cooking which very often is not enough to coagulate the blood in the centre of the joint is insufficient to destroy either the bacilli or their spores. Whenever a piece of fleshmeat is cut at the table and the inside is red and blood oozes out, there is one point quite certain, and that is that if there were any bacilli present they have not been destroyed.

These bacilli when they enter the body by any source, seem to get into the blood stream, or the lymphatics, and thence are carried to the lungs where they apparently usually settle down, and for some time appear to be lost, but their action and growth though exceptionally slow is sure, and is akin to the action of the bacillus leprosy (leprosy) and ere long we find tubercles appearing; it does not always follow that because we only find tubercles in the lungs that the disease may

be called "local," because when a more careful examination is made they are sometimes discovered in the marrow before any great manifestation of them takes place in the lungs, and it must not be forgotten that there may be thousands of spores present, and yet they may not be able to be discovered in the field of the microscope, so very minute are they in comparison to the corpuscles of the blood, or the tissues in which they may be located.

The bacillus propagates by fission and also by spores, and therefore, once it has managed to secure an encysted lodgment free from the attacks of the protective corpuscles of the blood it keeps sending out host upon host to extend its conquest, and so the usual mode of progress is for a greyish deposit to be made in the normal tissue, and then this caseates (becomes cheesy), and sometimes cretifies (becomes chalky), and sometimes passes into the condition of pus in which the bacillus is specially active and rampant. It is also, meanwhile, throwing off a very poisonous alkaloid, which tends to reduce in an alarming degree the vital resistance of the body. This virulent poison contains the celebrated Tuberculin, and the power of this is well known; one millegramme of Koch's fluid, which contains 1 per cent of the essential principle—that is to say only 1-6,500th part of a grain of the tuberculosis itself—is

enough to produce high fever and considerable swelling, and it is, therefore, one of the most powerful poisons known.

According as these bacilli or spores manage to find lodgment in the various organs of the body, so is a different name given to the disease—when they commence operations in the mesenteric gland, the disease goes by the name of “tabes mesenterica.” When the brain is attacked we have tubercular meningitis, or water on the brain. When the lungs are the organs affected, and this is the most usual in the case of adults, it goes by the name of phthisis or consumption. When the joints or the glands become the seat of the mischief we find what is called a scrofulous or strumous state at once resulting. When it is the skin we have lupus caused, while many cerebral and paralytic diseases apparently have their origin in the same terrible bacillus, so far extending and so potent is it in its power to injure.

It must not be forgotten then that the range of the powers for evil of the *Bacillus Tuberculosis* is an enormous one, and that its own power of vitality enables it to survive under conditions which might have been considered to have been fatal to it had not experience proved the contrary.

In sixty-two experiments with Tuberculous flesh soaked in boiling water from ten to fifteen minutes, positive results were obtained of its existing vitality in thirty-five.

Koch, too, obtained it still quite active after conveying it through thirty-four generations of culture for a period of more than twenty-two months, while Strauss and Wurtz have demonstrated conclusively that the gastric juice and the other active fluids of the alimentary canal do not destroy it.

We must look upon the bacillus of consumption as a far more deadly and terrible foe than the bacillus of leprosy. People dread the thought of leprosy and know its fell powers, let them remember then that consumption is still more deadly.

We must further remember, too, that the bacillus in its action nearly always produces a local death or necrosis of the tissue on which it acts. There is, therefore, usually a central piece of dead tissue, in which there are practically now no more bacilli, surrounded by living tissue in which the bacilli are actively continuing their work. Thus an affected part is always an active centre of infection for the whole system.

THE EXISTENCE OF TUBERCULOSIS.—

The fact of the existence of consumption (to say nothing of the other diseases caused by the *Bacillus Tuberculosis*) and the dark shadow of hopeless despair which it is casting upon modern life was manifested most pathetically by the rush to Berlin, when the whisper of Koch's so-called discovery for its cure was

heard. There is not a family but knows its ravages, and not a congregation at church, an assembly in a ball-room, or a half hour spent at a street corner watching the passers by, but the hectic flush or burning eyes are seen, or the tell-tale cough too surely speaks its sad message.

Dr. Hambleton, in his communication to Sir Evelyn Wood (1892), on the physique of the army, says:—

“I have referred to the large amount of waste under the present system in the Army produced by preventable disease. One of the chief sources of this waste is consumption. During the six years 1880-85 that disease caused a waste in the army of 4,422 men and a financial loss to the State, on Lord Eustace Cecil's estimate of £120 per man, of £530,640, being an average annual loss of £88,440. To this must be added in great part other diseases of the lungs and of the circulatory system, and these diseases together form the chief source of the invaliding and death in the army. From the data lying before me I estimate that this preventable waste in the army causes a financial loss of at least half a million per annum, and very materially adds to the number of the recruits that otherwise would not be required.

Dr. Landouzy, member of the Academy of Medicine, and one of the Editors of the *Revue de Médecine*, says—

"I shall never be weary of repeating at this moment of discussion on the depopulation of France, that tuberculosis of itself does more for the depopulation of our country than alcoholism, syphilis, and Malthusianism put together. It is worth while proclaiming far and wide that in France hardly anything is attempted to put men on their guard against tuberculosis contagion; that everything yet remains to be done, and that in the matter of tuberculosis prevention, veterinary science is further advanced than the science of medicine as applied to men. The public should be as well informed in the matter of consumption as it already is as to scarlet fever, typhoid fever, or hydrophobia. To hereditary tuberculosis, so interesting for the specialists, must be assigned only a small portion of the tuberculosis which decimates babyhood. Some 2,000 babies annually in Paris succumb, from the age of a few days up to two years, to tuberculosis. At Kiel the mortality among babies of the same age is 34 in 100."

And in his paper, read before the Congress in Paris, in 1888, he says (p. 202):—

"Our statement regarding the frequency of Tuberculosis in the newly-born is based on the observations made by us at the Crèche of the Hospital Tenon, where fifty *post-mortems* of pronounced Tuberculosis, occurring in about five years, have shown that, in this special sphere of observation, of every three children, aged from a few weeks to two years, in whom a *post-mortem* was made, on an average one was tuberculous.

"What occurs at Tenon seems to be identical with that which is found in other analogous hospitals. This is, at least, the opinion of our masters, Professors Hayem and Damaschino, whose opinion is based on the facts observed at Saint-Antoine and at the Hospital Laënnec."

Dr. Coats, in a paper read before the Annual Congress of the Sanitary Association of Scotland (1891) says :—

"We may, I think, safely affirm that of the total deaths under ten years of age, amongst the mass of the people, about a third are due to Tuberculosis.

"A comparative estimate of the frequency of healed Tuberculosis may be formed by a careful scrutiny of *post-mortem* records. Such a scrutiny was made by Dr. Thomas Harris, of Manchester, in an admirable paper published in the *British Medical Journal* for 1889 (vol. ii. p. 1,385). I need not go particularly into his results, but he came to the conclusion that taking the deaths of persons over twenty years of age, what he calls involuted Tuberculosis of the lungs was present in about 38 per cent. of the cases.

"I have taken the *post-mortem* examinations in the Western Infirmary for about ten months, from the end of October, 1890, till the end of August, 1891. These examinations were almost all made by myself. I found that about 23.3 per cent. of the cases dying from such diseases as cancer, heart disease, apoplexy, etc., showed that in a former period of life they had been affected with Tuberculosis.

"Taking into account the frequency in children, Tuberculosis furnishes about 22 per cent. of the total deaths. Of those who die from other diseases a large number, variously estimated at 23 per cent. to 38 per cent., show evidences of having been affected with Tuberculosis of internal organs. Taking even the smaller figure, *which does not include cases of external Tuberculosis*, and adding to it our first figure, we get a total of 45 per cent. That is to say, of all persons who are born into the world, about a half, if not more than a half, are fated before they die, to be affected with Tuberculosis, in one form or other. This is, I take it, a sober fact, and one having sufficiently serious bearings on the health of the community."

It is almost inconceivable that such a state of affairs exists and yet so little is done to stem the torrent.

Realise the fact as you walk in the streets, as you look round a happy dinner party, as perchance you go round the little beds in the nursery to bid a good-night! Realise the fact that every other person you look upon will be affected at some time or other of his or her life with this terrible Tuberculosis! Realise that every fifth person will *die* from it, and then you will at least understand why it is of vital importance to search out every possible cause of its entrance; why every weapon must be lifted in defence against the invader, though it may cause the breaking with the customs of a life-time, or going through the fiery ordeal of long years of self restraint and mortification.

The case is such a terrible one that none of our cherished habits must be held sacred if they are found to be at the root of the evil. However difficult it may be to break through the customs in which we have been educated it must be done while we have the chance; if we find the cause of offence in the eye we must pluck it out, or in the arm we must cut it off.

If this were done beforehand in the habits of our life it would not need to be done so often literally in the operating theatre of our hospitals.

Let us now see how Tuberculosis may arise.

TUBERCULOSIS MAY BE COMMUNICATED BY INGESTION
OF TUBERCULOUS FOOD.

It has already been shown that ingestion in general is a more serious form of disease contamination than inhalation, and that this holds good, as well for tuberculosis as for other infectious diseases.

It is quite true that the ingestion of the bacilli may take place in other ways than by eating of diseased flesh, and that they are so introduced into the system, is proved by the presence of consumption in a high percentage among people whom we may suppose are not exceptionally large flesh-eaters, *e.g.*, people exposed to an atmosphere laden with dust.

In their case, as for example amongst bakers, the air laden with flourdust rapidly dries up that mucous envelope in which bacilli are usually expectorated, and which is the great safeguard against both them and their spores being disseminated far and wide whilst they are in their full vitality, and so sets them floating in the air within a short time of their expectoration from their living home. This germ laden dusty air is inhaled indeed, but when inhaled through the nostrils it is, to a great extent, filtered, and when inhaled through the mouth, the sticky saliva catches much of the passing impurity. This saliva, however, being swallowed, the bacilli are by this means introduced into the stomach,

and soon find themselves actively at work again in congenial surroundings.

All who are engaged in a dust-laden atmosphere should be specially careful to breathe through the nose, and also keep at hand a covered jug of water, so that when their mouth becomes dry through the deposit of dust in it, they may not adjourn to the nearest public house to "wash it down" with a pint of beer, and so get the disease germs inside the body in a pabulum suitable to their restoration to renewed activity, but may instead, rinse their mouth out with the water, and so, while the air they inhale is filtered, the deposit filtered out may be ejected from the mouth by rinsing, and not ingested by swallowing either the saliva alone, or mixed with "occasional drinks." Before eating or drinking in a dust-laden atmosphere, the mouth should always be carefully rinsed out.

While the fact of tuberculosis, however, arising in other ways is true, it is none the less certain that the ingestion of tuberculous flesh is a very serious factor in its dissemination.

Whatever may be urged about the power of the juices of the stomach to destroy disease germs, applies happily to all the cells of the body in a greater or less degree, and therefore if they were absolutely invincible, no disease of any organ could result by any means, for the

cell attacked would annihilate the attacking disease germ, but it is because no organ of the body is able to withstand too often reiterated attacks upon it that the stomach also, though it doubtless destroys many nocuous living things that enter it, yet under certain conditions allows enemies of the body to pass its portal, and we have the demonstrations of Strauss and Wurtz distinctly to prove the inability of the gastric juice, and the fluids of the alimentary canal to destroy the *Bacillus Tuberculosis*; the same thing is also conclusively shown by the fact that in the later stages of tuberculosis of the lungs, when there is not strength to expectorate all the phlegm, and so in consequence part of it gets swallowed, tuberculosis of the intestines often follows.

The only other possible objection to the position that tuberculosis is disseminated by the eating diseased flesh, is that cooking destroys the bacilli.

This undoubtedly is true; there is no animal or vegetable life known, which cannot be destroyed by raising its temperature sufficiently high. But what meat is so cooked that all its substance is raised high enough to destroy the bacilli of Tuberculosis? We have seen what they can stand (but how much more their spores can stand, we do not know), and there is no living flesheater but will acknowledge that flesh-meat is constantly eaten which is still red, in which even the blood is not coagulated, and

that the greater proportion of the flesh eaten has not been exposed to the same heat in the interior of the joint as it has on its exterior.

Let no one therefore be deceived by the plausible plea that cooking destroys all disease germs. Cooking as it is practised, and as they will continue to practise it who advance this very plea, does not destroy the bacilli of Tuberculosis or the spores.

The position of the bacillus in the roasting joint is something like that of old Rube in one of Cooper's Red Indian stories, where the prairie was on fire and old Rube was caught in the plains, and when his comrades came down again from the hills when the conflagration was passed, they found only the scorched and blackened corpses of some bullocks, and while they were deploring the loss of their old friend, the stomach of one of the bullocks began to move, and old Rube crawled out, singed and nearly stifled, but still alive and well. The flesh of the animal had not conducted the heat rapidly to its centre, and so though the outside was a cinder, the inside was still far from cooked.

Whether this be true or false, it well illustrates the position of the bacillus under the ordinary method of cooking.

There is another important point which is overlooked by those who rest contentedly under the plea of cooking,

and yet in spite of that thorough cooking die off so strangely. It is true that a sufficiently high temperature will destroy the bacillus, and a still higher will destroy the spores, but what about that alkaloid poison which the former have been excreting and whose toxic properties were proved so potent in Koch's Tuberculin?

Is it reasonable to suppose that a substance can be taken with impunity, whose virulence is so great that a mere infinitesimal trace, 1-6,500th part of a grain is enough to produce high fever when introduced directly into the blood?

It is quite probable that these poisonous alkaloids, these ptomaines as they are called, are to some extent volatilised in cooking, and those which are not so driven off, but which are imbibed in the soup and gravy are probably often split up into their chemical elements, or enter into other chemical combinations comparatively innocuous. This is the best possible complexion that can be put upon the case (for the terribly poisonous nature of these ptomaines is admitted by all), and somewhat resembles the position of the woman who mixed a little prussic acid in her pudding for a flavouring, with the happy simplicity of assurance that it would be all driven off in the cooking.

It is possible to split up this latter poisonous acid into its harmless elements of Hydrogen, Carbon, and Nitrogen

by the action of heat, but few would be willing to run the risk of the decomposition not having taken place, by partaking of such a pudding, and yet because the results are not so readily manifest, and the risk is apparently less, little notice is taken of the danger incurred by eating of diseased flesh, if only it be cooked.

We must remember, too, that the evidence is far from being hypothetical, for in the Report of the Royal Commission on Tuberculosis, we find it stated that:—

“Numerous experiments have been performed upon the possibility of the tubercular virus entering the body through the alimentary canal. In these experiments, tubercular secretions, *i.e.*, mucus, saliva, milk, etc. portions of tubercles from diseased tissues and cultures of the bacilli have been swallowed by various animals (calves, pigs, sheep, rodents, fowls, etc.) with the effect that the disease has fatally followed the ingestion of such infective material.”

The conclusion therefore seems irresistible, that *if* the flesh of cattle be tuberculous to any appreciable extent, the risk to the community by partaking it for food is enormous, whether it be partaken of cooked so thoroughly as to be torrifed throughout (which is practically never done), or semi-cooked (as is almost the universal custom), or uncooked.

Whether then cattle are so diseased, is the next point to consider.

ANIMALS USED FOR FOOD ARE, AS A FACT, INFECTED WITH TUBERCULOSIS, TO A VERY HIGH PER CENTAGE.

The issue has now been reduced to this point, that flesh-eating is a serious cause of consumption if the flesh of cattle be tuberculous to any appreciable extent.

There are two points here which have to be faced (1) Are the internal organs often diseased? (2) Even though those organs be so diseased, is the flesh thereby affected, or is it sufficient to remove the diseased organs and use the rest of the carcase for food?

It seems impossible to deny the fact that tuberculosis exists amongst cattle used for food to an enormous extent; if any doubt the fact, they need but get permission to visit the nearest slaughter-house and examine the lungs and pleura of the beasts killed there, and this terrible object lesson—if they can only realise the meaning of the little nodules they will see—will be of more value than chapters of argument.

However, some evidence obtained from sources beyond suspicion may be of value to convince those who live under the belief, that because they deal with a first-rate butcher they are free from the danger of tuberculous flesh.

In the great Glasgow case, which was tried before Sheriff Berry in May and June, 1889, extracts from the

evidence of Professor Walley, ran as follows: Commencing question 2476.

And if an animal was not fit for human food you would not allow it?—Excuse me if I say you do not understand the matter at all. You will understand that I am the inspector for the Privy Council, but I have nothing to do with any disease unless it is under the Contagious Diseases (Animals) Act, which tuberculosis is not.

But this cow must have passed through your hands?—Quite probably.

And you tell us that the cow was so bad that, apart from all disease, you would have condemned the carcase?—Yes.

You allowed the animal to pass you in such a state? I allowed it to pass because it had no pleuro-pneumonia. I had no power to interfere.

Prof. J. McCall's evidence reads: Commencing Q. 2931.

That part of the sirloin of beef that you showed to the Committee showed visibly to the naked eye tubercles within the fibres of the flesh round an abscess?—Yes.

As well as within the marrow of the bone?—Yes, it was quite obvious to any one who knew a tubercle that they were tubercles.

Was the animal from which that was taken a prime animal?—The information that I received was that the bullock belonged to a party in the neighbourhood of Perth, and they drove it into the auction mart to be sold, and it was sold at £23. It was killed, and the inspector at Perth sent a cut to me of about 14lbs. in weight, and asked me to express an opinion as to the fitness of the animal for human food. I examined it, and I found a tubercular abscess, and round the abscess for a radius of about two inches or so, tubercles in the muscles and in the flesh perfectly distinct to the naked eye. I sawed the pelvic bone through the middle, and in the marrow you could see quite distinctly tubercles similar to those in the flesh. I wired back and wrote afterwards, that I thought the carcase should be destroyed. I got a letter a day or two afterwards, to say that the carcase had been dressed and sent to Glasgow.

In Dr. Imlach's examination, an extract was read from a published article of his, which was as follows:

"As to the condition of town cows, I shall give the opinion of Mr. George Fleming, the highest English authority on veterinary pathology—an opinion which, so far as I have been able to learn from observation and from inquiry amongst cow-keepers, is not an unfair one: 'Cattle kept solely for dairy purposes, and particularly in large towns, suffer by far the most severely from this affection (tubercular phthisis). Constantly confined in stables which are not always well ventilated and clean, deprived of exercise, drained of milk in large quantities, and fed on the kind of aliment which most favours the increase of that fluid, though it may not enhance its quality, it cannot be wondered that the nutritive functions of the cattle so treated must suffer to a serious extent. Indeed, it is a matter of daily observation that the cows which are abundant milkers are most liable to this disease.'—*A Manual of Veterinary Sanitary Science*, vol. ii., p. 370, 1875. That bovine tuberculosis is a very common disease is evident to anyone who has visited the slaughter-houses or shippens of this city. Grapes (as the farmer calls it) must be distinguished from various diseases of the lung, such as bronchitis and bronchiectasis. It commences with intense capillary congestion of the serous membranes and a subsequent formation of villous-like vascular processes, 'like the pile on red velvet.' Finally, leaf-like fringes, button-shaped nodules, and grape-like clusters are formed, constituting the distinctive mark of the disease. Both lungs may be tuberculous, or one may have only œdema or emphysema. The tubercle may be very extensive throughout the lung, and is then calcified or softened in parts. Vomicæ, without apparent communication with bronchi or pleural sacs, with soft cheesy contents and walls of indurative connective tissue, are a distinctive mark of the disease as it affects the lungs. The bronchial and mesenteric glands and the udder are often found to be affected, and it is easy, therefore, to imagine, at least, that the milk may carry the infection to those who drink it. Gerlach (1869) found this to be the case with animals upon which he experimented. A calf fed with tuberculous milk for fifty days was found tuberculous when killed fifty days later; a pig fed for twelve days with this milk, and killed thirty days after, had tuberculous nodules on the pleura and in the lung, and so on."

A practical butcher was sent to examine the two carcasses in question, and when it is borne in mind that

those very carcasses of which he speaks so highly, were, by the decision of the Court condemned to be destroyed as unfit for human food, the value of a first-rate West-End butcher's opinion as to the soundness of the flesh he sells may be calculated.

The butcher's evidence was as follows :

How old are you ?—55 years.

You are a butcher in Glasgow ?—Yes.

You have been in the butcher trade all your life ?—Yes.

And for thirty-five years you have been connected with the slaughter-house in killing and dressing cattle ?—Yes.

Did you, on the 9th of May last, see the bullock and cow in question in this case ?—I did.

Did you examine both of them ?—I did.

Tell us what the flesh of the bullock was like ?—The bullock was one of the best carcasses of beef that could have been found in the market that day or the day previous.

Was the flesh of excellent quality ?—Excellent.

Well fattened ?—Yes.

And the butcher who bought the bullock, said, in reply to questions, commencing with Q. 3318 :

Do you buy the best animals ?—The best I can get as a rule.

Was this one as good as any of the rest ?—Just as good in quality ; scarcely so big as some of them, but as good in condition. They were all in first-class condition.

Was there anything wrong with the animal at all that the eye could see ?—Not to appearance.

Would you have bought the animal if there had been anything wrong with him ?—No.

Was the price the market price of the day for the best animals ?—Yes, and it was above the average price of animals altogether.

It was about the highest market price ?—Yes.

While in his judgment, the Sheriff said of these very

same animals which the best butchers considered of prime quality :

The conclusion which I have formed on a careful consideration of the whole evidence is, that at the time when the carcase of the bullock was seized it was unfit for the food of man, and therefore the prayer of the petition should be granted The disease is shown to have been not merely local. It was so far generalised as to extend to the lymphatic glands, and to parts which would have gone out into the market for food.

My judgment on the case is based on this, that tubercular disease is shown to have existed in the animal at the time when it was slaughtered, and to have already begun to spread through the system.

In Prof. M'Fadyean's evidence, some statistics are quoted from Germany: Commencing Q. 2801.

As to Berlin, I see you have got in the *Journal of Comparative Pathology* for March, 1889, an extract from Adam's *Wochenschrift*—is that a German publication, published in Berlin?—I think it is published in Angsburg.

And an article on meat inspection at the Berlin abattoir or slaughter-house, p. 72?—Yes.

There I see it says, "Tuberculosis was detected in 4,300 cattle, 8 calves, and 6,393 pigs, and on account of that disease the entire carcasses of 985 cattle, 8 calves, and 1442 pigs were condemned, while 8,322 organs or parts were withheld from consumption." Now, you notice that out of 4,300 cattle which were found to be effected with tuberculosis, only 985 were destroyed altogether?—Yes, I observe that.

A few other extracts from the evidence of different witnesses will suffice to show the ordinary state of the flesh market : Q 272.

Has it been quite the custom in Glasgow, and quite well known in Glasgow among the trade, to keep parts of affected animals and allow the butcher to sell the other parts?—Yes.

Did that apply in those cases where the internal parts were affected and the flesh of the animal was not?—Yes, it applied where the intes-

tines were not fit for human food, and the carcase was otherwise good.

I believe for the last ten years, from Moore Street market alone, you have allowed 1902 carcases to be taken away, the intestines being condemned or partly condemned?—Yes, about that number within the last ten years—about 2,000.

Or 200 a year for tuberculosis only?—Yes.

Q. 1131.

Is it the case that there is a practice of delicate children having shredded raw meat administered to them?—Yes.

And also the juice of meat?—Yes, I heard of a case the other day.

MR. JAMESON : Do you medical men think that is a proper or safe thing to give to children?—I presume that precautions will be taken. The whole tubercular controversy is since 1881. I presume that these juices are really made from wild cattle, which are very seldom troubled with tuberculosis.

Do you mean cattle in America?—Largely.

In the American reports from Chicago, it is proved that there is far more disease in the cattle passed in Chicago than there is in this country?—I know the general statement that prairie cattle have no tuberculosis.

Q. 3257.

My learned friend read to you from the report of the Commission that the eating of fowls is a very dangerous thing, because they are often affected with tuberculosis, and you accepted that as fact. Is there any means in Glasgow of condemning fowls so affected?—Not that I am aware of.

Q. 4734.

You are the medical officer of health for the town of Hull?—Yes.

What do you do in cases of tuberculosis?—We pass animals affected with localised tubercle of the lung in the first stage.

Suppose the tubercle affects more than the lung?—We pass the carcase as fit for food.

Q. 5064.

Is tuberculosis a common disease in milk stocks in and about Glasgow?—It is.

How many would you say of the milk cows in and about Glasgow are affected with tubercular disease?—Twenty per cent. more or less.

What leads it to be so common among milk cows?—A long-continued lactation, and also the general draining of the system for the purpose of deriving milk, and the want of fresh air and exercise.

If we turn away from some of the facts adduced in this striking case to what is going on around us on all sides, there is abundant evidence to show that to-day our breeders breed tuberculous animals, our feeders rapidly fatten up animals which have become tuberculous from long lactation or other causes, that our butchers purchase (sometimes honestly and ignorantly, and sometimes knowingly and purposely) these animals privately or in the open market, that they are slaughtered in private sheds and slaughter-houses, in villages and towns alike, under no super-vision, that the carcasses are “stripped,” and the internal organs, if *badly* diseased, are otherwise disposed of, and if not *very* badly gone, are sold in cheap shops, or give substance to highly spiced sausages, while the remaining portions of the animal in which the disease is unable to be detected except by a microscopical examination—which it never gets—are distributed far and wide, and appear equally as sirloins on the royal board, or as tripe in the peasant’s hut.

A few quotations from the public press will show that the picture is far worse even than I have drawn it, for to those who know how little of the meat eaten is inspected at all, and how great are the facilities for the sale and disposal of diseased meat, how exceedingly difficult it is

to detect the disease when the carcase has been stripped, and finally, how onerous and thankless a task it is to prosecute, will know well that one case brought into court, is but, as it were, an accident, which reveals the terrible stream which is rolling on in its health-destroying course beneath the fair surface of modern civilisation.

In one month (May 1892) Mr. Cameron, the sanitary inspector of Aberdeen, reports that he made 330 inspections of markets and public places, and made the following seizures :—2,144 lbs. beef ; 133 lbs. mutton ; and 7,336 lbs. msh. Of the seizures, eleven were destroyed by order of the magistrates, and nine by consent of the owners.—*Northern Daily News*, June 20th, 1892.

On Thursday, George Elsdon, butcher, Ladylaw-place, Hawick, pleaded guilty to having had in his possession a carcase of a heifer unfit for human food. Mr. Andrew Haddon, solicitor, representing the accused, said his client had no guilty knowledge, and would have been the last man in the world to expose unsound meat. The animal had been suffering from sturdy, and the impression entertained by Elsdon was that as affecting human food there would be nothing wrong with the meat. Mr. M'Donald, public prosecutor, said this was a very serious case. Elsdon had seen the animal before purchasing it. The heifer was not only affected with tuberculosis, but was also suffering from pleurisy. Despite the number of these cases brought on recently, and the penalties imposed, the practice of offering bad meat was being persisted in, and instead of allowing delinquents to get off with moderate fines, the time had come when such conduct shall be put down with a strong hand. The fact that the animal was being conveyed in a cart with part of its entrails taken out should have satisfied any one, and especially a butcher, that there was something wrong. The prisoner was fined 40s., with £2 11s. expenses, the alternative being twenty days' imprisonment.—*Kelso Mail*, June 22nd, 1892.

At the Central Police Court, Glasgow, on Friday—before Stipendiary Gemmel—James Macdonald, flesher, Rothes, was charged with having, on 24th ult., in George-square, conveyed two packages of

beef weighing 294 lbs., for the purpose of sale for human consumption, and which was unfit for that purpose, being diseased.

Inspector Warnock, of the Sanitary Department, stated that on 24th ult. he saw the meat when it arrived at Buchanan-street Station rolled in sheets, and, observing that it was tuberculous, followed the lorry and seized the meat in George-square. The pleura and the intestines had been carefully taken out, and the meat dressed as if for use as human food. It was only by careful examination that the tubercles on this meat were discovered.

William Inkson, butcher, Rothes, who assisted at the killing of the animal, said that it was a fat, good-looking heifer, and worth between £13 and £14. The carcase was sent to Glasgow to be boiled down. When the viscera were taken away a portion of the pleura came with it. These were given to the pigs, to which they were in the habit of giving odd bits of beef.

Roderick Scott, the salesman, to whom the meat was consigned, said he received carcases from all parts of the country, and these were all inspected. If condemned, the meat was boiled down. All over the country pigs were fed on beef and offal.

The Stipendiary ordered the meat to be destroyed, and inflicted a penalty of £20, with the alternative of sixty days' imprisonment.—*Elgin Courier*, April 12th, 1892.

In the *Liverpool Courier* of April 30th, 1892, a case is recorded which is exceedingly instructive, as showing how anxious a fraudulent butcher is to get the carcase dressed before an inspector should chance to see it, being pretty certain that once the stripping is completed the detection of the disease, even when in a very advanced state, is impossible.

It is often asserted that Tuberculosis soon manifests its presence by rendering the flesh watery and flabby, but as we have seen before, the normal progress of the bacillus is very slow, and here, even when "the lungs were one

solid mass of tubercular deposit, and the animal thoroughly riddled in tubercles," it was said that "the flesh set firm" so subtle is the action of this disease (everyone knows, too, how painfully deceiving is consumption in the human being, sometimes the patient apparently getting quite well for a little while, like a flickering candle before it goes out), and so difficult, nay, impossible, is it to detect it with certainty from an ordinary examination of the carcase when once it has been dressed.

It is very important, too, to notice that evidence was given that it was "impossible for defendant to have told the meat was diseased when he purchased the cow." If Tuberculosis cannot be detected by the ordinary butcher in buying his "beast" when in such an advanced stage as this was, how is he likely to avoid constantly purchasing animals with the same terrible disease in a less advanced state?

When he finds it out after killing on his own premises with no inspector to see, what is he likely to do?

This case was dismissed, as an encouragement to other butchers to do the same.

At the Birkenhead Police Court, yesterday, before Mr. Preston, stipendiary magistrate, George Heselhire, butcher, 24, Watson-street, Birkenhead, was summoned for having, on the 14th April, unlawfully exposed for sale, in the Corporation abattoir, the carcase of a certain cow and the offal of the same, which upon examination by Robert Wagstaffe, inspector of meat, appeared to be diseased, un-

wholesome, and unfit for human food, and were thereupon seized by him and condemned and destroyed by the order of the magistrate.

Mr. Hayton, assistant town-clerk, prosecuted, and stated that the defendant bought the cow in question along with some others at a sale at Hooton on the Wednesday before Easter. It was driven along with the other cows to the Corporation abattoir at Tranmere, and was there entered in the name of the defendant. That was the first step in the wrongful course taken by the defendant, because he would be able to show his worship that from the appearance of this animal, which was purchased for £4 17s., it was doubtful whether it was fit for human food or not. Defendant, in fact, must have known it was unfit for food, and instead of entering it in the ordinary way, he should have entered it for inspection. On the afternoon of the following day the cow was slaughtered by two of the defendant's men, and when they were dressing her the inspector came upon the scene, and immediately seized and locked up the carcase, his attention having previously been called to this cow. On Good Friday morning the inspector met defendant and told him he had seized the carcase and offered to show it to him, at which defendant made use of a remark which was very incautious. The defendant said, "Well, if I had stripped it you dare not have taken it. These two hind-quarters seem to be very good."

He (Mr. Hayton) suggested that showed clearly what the intention of the defendant was. He knew perfectly well if the cow had *been dressed and the tuberculous matter taken off it would have been difficult for the inspector to see that the cow was suffering from disease.* After the carcase had been seized, defendant offered to sign for it, but it was then too late. Having regard to all the circumstances the Health Committee had no hesitation in bringing the case before the court. They considered the facts of the case showed there was a deliberate attempt to run the blockade with this carcase, and they had instructed him to ask for a heavy penalty in this case.

Dr. Marsden, medical officer of health, stated that he examined this carcase and found it thoroughly impregnated with tubercular disease. The lungs were one solid mass of tubercular deposit, and, in fact, the animal was thoroughly riddled with tubercle throughout. It was, in his opinion, totally unfit for food. In reply to his worship, Dr. Mars-

den said he believed consumption was constantly communicated to human beings by eating of this kind of meat. He was of opinion this was one reason why there was so much consumption among the lower classes.

Mr. Preston : Is it a fact there is less consumption among the Jews than among other communities, because all meat eaten by them is subjected to thorough examination ?

Dr. Marsden : I have seen statistics which go to prove that.

After hearing a witness for the defence, Mr. Preston said he considered no exposure for sale had been proved, and he would therefore give the defendant the benefit of the doubt, and dismissed the case.

At the Wigan Borough Police Court, on Thursday, William Storey was summoned for having in his possession for sale the carcase of a cow which was diseased and unfit for the food of man.

On March 25th, at half-past nine in the morning, the inspector and his assistant visited a slaughter-house in Mitchinson's-yard, Scholes, and there found the defendant and a man named Philip Kershaw engaged in dressing the carcase of a cow.

Defendant asked the inspector what he had come for and who sent him. The animal was inspected, and it was found that the lungs, liver, and diaphragm, and the abdomen were practically covered with tubercles, which were what was known as the caseous kind. The tubercles were in an advanced state. The officer told the defendant that the animal was diseased, but he still continued dressing it. In the meantime the medical officer was sent for, and on his arrival he inspected the carcase, which was subsequently seized.

Mr. Taylor, inspector of nuisances, gave evidence bearing out the above statement, and added that the tubercles on the lungs were in such a condition that he could scarcely put the head of a pin between one tubercle and the other. Defendant offered him a sovereign if he would tell him who had sent him.

Dr. Barnish said he examined the carcase, and condemned it. He found tubercles in the lungs to a very great extent. The lungs were almost solid with the deposit, and they would not have floated. The liver, the walls of the chest, the walls of the abdomen, and the diaphragm also contained deposits of tubercles. It was a young cow, was poorly nourished, and was in full milk. He would not actually

know that the animal was diseased before it was killed and opened.—*Wigan Examiner*, April 11th, 1892.

Before Stipendiary Gemmel, at the Central Police Court, Glasgow, William Watson, 774, Gallowgate, was charged under the Police Amendment Act of 1890, with having, on June 2nd, 1891, had in his possession several portions of the carcase of a cow for the purpose of sale, or preparation for sale, and which might be used for human consumption, for which it was unfit.

Dr. Russell, medical officer for the city, said he visited the respondent's premises along with his assistants, Drs. Kennedy and Walker. There were two sections in the place, one for melting—by means of steam—ham, skins, parings, and tallow for industrial purposes, and the other for melting fat for dietetic purposes. In this latter place he observed tin vessels on the floor filled with fat, which Mr. Watson told him was intended for frying fish. On the table he saw parings of carcasses and a knife, as if some one had been cutting up fat and putting it into the boiler, in which there were several portions. On a hook were hanging 9 or 10 lbs. of fat, on which he noticed swellings. This attracted his attention, and when he took the fat down and cut it up he found it covered with tuberculous masses. These were imbedded in the fat, which was quite unfit for human food.

By Mr. Campbell: Tuberculous matter was occasionally used for tallow melting, and was quite unfit for industrial purposes. *Bacillus Tuberculosis* was a germ, and when fat containing it was melted at, say, 212 degrees, it would cease to exist as [a creature, but the spore or seed had extraordinary vitality. In the opinion of experts, there was no guarantee that the spore would not remain, after boiling, in a condition that was dangerous to the consumer of fat.—*North British Mail*, July 15th, 1892.

Arthur Barber, of 253, Cassland-road, Victoria Park, was summoned by W. Parsons on behalf of the St. Luke's Vestry, for unlawfully exposing for sale 23 sheeps' heads and two sheeps' plucks which were unsound and unfit for human food, in Whitecross-street, St. Luke's, on the 28th ult.—Defendant pleaded guilty.—Inspector Parsons said he had ascertained that the heads were purchased at a penny each.—Defendant said they were bought at 1s. 6d. a dozen.—Mr. Horace Smith fined the defendant £20, or two months' imprisonment

in default. He described it as a shocking state of things.—*Daily Chronicle*, June 13th, 1892.

Where were the carcasses belonging to these dozens of heads and plucks? Who passed them if they were examined, and if they were not examined what guarantee is there that hundreds and thousands more are not passed in the same way with the diseased “plucks” removed?

The Superintendent of Police produced a record of previous convictions against the defendant for bad meat offences, which he had received from the Chief Constable, of Nottingham. In March, 1882, for a similar offence, the defendant was fined £7 10s.; in October, 1888, £2; in 1885, £3; in 1886, £20; and in 1889, £5.—Mr. Sitwell asked how much the defendant charged per lb. for his meat?—Inspector Mitchell: From 3d. to 6d. per lb.—Mr. Sitwell said a person could not expect to get good meat for 3d. per lb.—The defendant was fined £10 and costs, amounting altogether to £11 3s. 3d.—The money was paid.—*Nottingham Daily Guardian*, July 14th.

This is a case which looks as if selling bad meat were a very profitable trade, for if a man could go on, again and again, after being fined to such heavy amounts, it proves that the profit must be good or the risk not very great. We are under the happy delusion that when a man is convicted and fined there is an end of the matter, and he will never transgress again, but this is not the case, he will be only a little more careful to remove the traces of disease, and the result will be that the inspector will be tired of the nuisance of prosecuting before the man gets tired of selling diseased meat.

At the meeting of the Public Health Committee of the Edinburgh Town Council, Dr. Littlejohn reported that during the month of May

52,085 lbs. of unsound meat were seized or delivered up in the city. The total amount consisted of 45,052 lb. of beef, 2,622 lbs. of mutton, 395 lbs. of pork, 1,112 lbs. of ham, 2,194 lbs. of veal, and 710 lbs. of fish. There were 22,254 lbs. consigned from the city, and 29,831 lbs. from the country. Of the 245 seizures which have taken place during the month, 65 were made at the instance of the Board of Agriculture. There were two convictions and prosecutions during the month.—*Glasgow Herald*, June 10th, 1892.

To turn for a moment in this sickening category of disease from our own shores to foreign lands.

A few cuttings collected within a month or two, and selected from scores of others, show unanswerably that tuberculous meat is being sold daily in our own markets, but there are other sources of supply, and people may readily reply that they carefully avoid English fed meat and eat only imported meat from "herds fed upon the boundless plains where no shadow of disease has fallen."

This is all very well in words, but what the opinion of experts is as to American cattle which are fed and fattened under conditions nearly identical with our own was expressed in the Glasgow trial mentioned previously.

If we turn to Australia, which is our other great source of supply, what do we find?

The following account taken from *The Brisbane Courier*, of March 5th, 1892, throws some light on the subject. It was incidental evidence adduced in the Melbourne Insolvent Court on the examination of a bankrupt, and is therefore of great value as being beyond accusation of bias.

"An adjourned examination sittings was held in the Insolvency Court, in the estate of George Roper, of Fitzroy, butcher and grazier. The insolvent, in a previous examination, stated he had kept a butcher's shop at 366, Brunswick-street, and another in Canning-street, Carlton. He used to speculate in stock and go to all sales. That was how he incurred the £1,244 liabilities he owed at sequestration. The inspector condemned meat he sold nearly every day. He never could get any good cattle. The 'toff' butchers got them. He bought the 'rough 'uns' in the market and all the cheap stuff. He had to get some good cattle to hang in front of the shop, and this enabled him to sell the bad stuff he had in the back. His men were a terribly drunken lot, and he could not control them. He was continually changing the names on the shops, so that people should not know his meat had been condemned. He put a new man in charge too whenever the inspector condemned his meat. He had two stalls in Paddy's Market, for which he paid 7s. 6d. and 12s. a week. Some of the 'boys' working for him were forty years of age. He had about twenty-five boys working for him.

A drover, writing to the *Sydney Daily Telegraph*, of May 16th, 1892, says:—

"As a drover and a station manager for the past thirty years in New South Wales and Northern Queensland, I can speak with some authority and can assert most emphatically that the public generally can form no conception of the number of diseased stock forwarded to market, slaughtered and sold for consumption.

"There is scarcely to be found a herd in the colonies that does not include a number of what are called lumpy and cancerous cattle, which, when noticed, must either be shot or sent on to market, and depend upon it the beast is only shot when the disease has reached such a stage that its loathsomeness can be detected by the nearest novice. Frequently, when far advanced in disease, they are sent on with a mob of fats, for all stock count in a manager's returns of stock sent for the year. Frequently they are sold on the road to local butchers, or culled out before arriving at the abattoirs and reach the consumer by other channels. I have done it myself and had it done for me dozens of times. The badly diseased cattle were culled outside Homebush, but you got them and get them in Sydney all the same.

“Then again, how few herds are there in the colonies that are not tainted with pleuro or Cumberland disease, and what hundreds or even thousands of beasts so affected are sold and eaten every year? As to the quantity of diseased cattle that reach the market it is not in Parliamentary returns nor in the reports of officials, but in a quiet chat with the men engaged in the business that you will find the real information.”

I have dwelt on this repulsive aspect of the flesh trade question so long because it is constantly thrown into the teeth of Vegetarians that their assertions are exaggerated and are unfounded. I have tried, therefore, to collect statistics from sources which are above suspicion and from a wide area, and thus enable every Vegetarian lecturer to provide himself with unimpeachable data ready to hand whenever he may be challenged.

Let me conclude it with a personal experience which illustrates very forcibly the exact conditions under which we live, when viewed in *the very best* light, and so enable us to picture what the worst side may be. By the kind invitation of Professor Wynter Blyth, I accompanied him and some representatives of the College of State Medicine to inspect the slaughter-houses at Deptford.

As it is well known, this is the great point for the import of foreign cattle, and is fitted up in such an elaborate way, with every modern improvement, regardless of expense, that it may be taken as a model slaughterhouse of our country.

Every facility is here provided ; there is no slaughtering

in the early dawn or in the gathering gloom of evening to escape the eye of a possible inspector. Everything is done at fixed hours, and every beast is kept several days after landing and has to pass under the inspector's eye before being allowed to be slaughtered. Everything is simple and straightforward, and collected within a narrow focus which makes it perfectly easy to be thoroughly supervised—so different from the scores of private slaughterhouses scattered hither and thither in the ordinary inspector's wide district. All the meat goes up from Deptford, too, to the Central Meat Market, and is there again inspected. What more would you have? Is not this a sufficient guarantee that meat killed at Deptford is at any rate free from the possible taint of Tuberculosis?

Not at all. Let me explain why.

The head man in charge who showed us round, readily and intelligently answered all questions, and not only did the Professor want to extract as much information as possible for the benefit of his class, but a doctor who had come from Sydney to study English methods of meat inspection was anxious to know everything, and I, too, was keen to know the truth upon a matter which is of especial interest to those engaged on the anti-flesheating crusade, so that it is evident that we sifted most things to the bottom.

The following few questions and answers show where the screw is loose, and tell the same old tale of non-immunity from tuberculous meat.

"I suppose you land an enormous number of cattle here?"

"We are pretty well always landing. Mere figures would hardly convey an idea to you of the numbers that pass through here in a year."

"Live cattle?"

"Oh, yes, we don't have anything to do with the imported killed meat."

"Everything inspected, of course?"

"Oh, yes, not an animal passes but what has been inspected."

"What are they inspected for?" asked the Sydney doctor.

"For? Why, bless you, sir, 'Foot and Mouth' and pleuro. They've been very strict till just lately again, owing to the outbreak of the 'Foot and Mouth.'"

"For anything else?"

"No, nothing else, unless there were any infectious fever."

"Not Tuberculosis or Actinomycosis I suppose?"

"Oh, no, the inspector has nothing to do with that."

"Have you had any rejected lately?"

"Not for a long time, we haven't had a single beast stopped."

So that, it is perfectly plain that the diseases which do exist to a high percentage do not prevent the animals passing *this* stage of inspection; thus so far the tuberculous animal passes on unchallenged.

"When they are slaughtered is there an inspector present?"

"Oh, no, we are slaughtering all day, the inspector has nothing to do with that."

"He doesn't see the slaughtered carcasses then?"

"Oh, no, that's all done at the Central Meat Market."

Now carefully note the next replies in the light of all the evidence that has already been adduced to show that once the internal organs are removed, and the carcass stripped and dressed, it is almost impossible to detect Tuberculosis even in cases of an advanced and terribly dangerous character.

"What is done when the animal is killed?"

"If you'll come with me I'll show you. It lies a little time on the floor to bleed; is then drawn up to the beam above, head downwards, opened, the skin taken off, the intestines and all the internal organs taken out, dressed and carried to the refrigerating chamber, where it remains about twenty-four hours to harden, and is then sent up to the market."

"And what becomes of the internal organs?"

"Oh, they are contracted for and are carried away."

"Are they not inspected?"

"Oh, dear no, we have nothing more to do with them."

And this is the state of affairs in the model slaughter-house of Great Britain!

And people will hug themselves under the delusive belief that their meat has been inspected, and that "good" butchers never get diseased meat.

I looked at the Professor in mute astonishment.

"My dear fellow," he said, evidently understanding my meaning, "I'm not an apologist for this state of affairs, in fact, I think the present state of meat inspection is disgraceful, and almost worse than useless, because it gives people the idea of security when they really have none."

The great struggle as to the danger of tuberculous meat has been fought over the question of general or local Tuberculosis. On one side it has been urged that when the disease is restricted to a small area of lung surface the rest of the carcase is in no way affected and if the affected organs be stripped away, the flesh of the animal may—and for economical reasons should—be used as food and not destroyed; while the other school has consistently maintained that the presence of a tuberculous deposit however small, proves the presence of the specific bacillus and that to enable this lodgment in the lung to have taken place, the blood stream or the lym-

phatics must have been passed through and therefore probably contain others travelling on the same road, and moreover the fact of tuberculous deposit means an active presence of bacilli constantly multiplying by fission and spore at an enormous rate and sending out these offspring by hosts into the blood stream and thence over the whole body, so that the presence of a trace of tuberculous deposit renders the risk of partaking of any part of the animal so great, that the whole carcase should be at once condemned.

There is a *via media* which seems to me to contain the truth, and it rests on the fact of the wonderful power of the organism to protect itself when it is unable to destroy or eject an invading foe, by encysting it or walling it up.

It might be supposed that a bullet when it lodges in the body would be gradually acted on by the juices of the tissues in which it is embedded, and so in time would be absorbed and possibly cause lead-poisoning during the absorption, but nothing of the kind in reality happens. Little by little the living cells of the body build a wall round the bullet so that eventually it is enclosed in a prison and is quite cut off from the busy life which is going on all round it.

In the same way there are some cases where an animal may show a tuberculous deposit and yet—with the

exception of that particular spot—be quite healthy. A good illustration of this is shown in the case of tuberculous warts which butchers sometimes get on their hands from *handling* the tuberculous meat. (N.B.—This is the same meat which other people *eat* and so get tuberculous lungs.)

It often happens that in such cases the wart remains quite local, and becomes so encysted from the blood-stream that this is the only point where the disease exists.

This state however is an exceptional one, and though it affords a perfect ground for those who uphold “local” Tuberculosis and the consequent healthiness of the remainder of the carcase, it is no answer to the contention that a tuberculous deposit in an internal organ is a danger of so grave a nature that “stripping” will not remedy it, because to decide whether the bacilli present in the tubercles are, or are not, in communication with the blood-stream and lymphatics is almost a hopeless task even for a specialist armed with a powerful microscope, and even to tell with certainty whether the disease is in a progressive state, and so eminently dangerous, or in a state of being conquered by the living cells of the body and, therefore, comparatively less dangerous, needs such skilled and careful examination as it is impossible to give.

At the earliest stage of lung tuberculosis it is impossible to say that the disease is "local," because whenever tubercles appear in the pleura, they must have come there through the blood stream, and, therefore, the blood stream is diseased, and with a diseased blood stream the whole body may be, or may at any moment become, diseased.

I want to point out, therefore, two results of this, the first is that the term "local" as meaning harmless as to the rest of the carcass is misleading, because it is impossible to say at any moment that the bacilli are restricted to the tubercle which they have caused, the second is that by "stripping," only such organs as the pleura are removed while the blood vessels which pass through the whole of the body remain and the lymphatics into which the bacilli apparently very early pass, cannot be removed as they are for the most part surrounded by fat and stowed away all over the body.

That the position I have taken up is the one to which the latest studies of bacteriology seems to tend is pointed out by the significant fact that at the proceedings of the North-Western Branch of the Society of Medical Officers of Health held at Manchester, on May 20, 1892, after a discussion on a Paper by Dr. J. Anderson, entitled, "Tuberculous Meat and its Exclusion

from the Meat Market," the following resolution was unanimously agreed to :

"That the flesh of any animal affected with Tuberculosis to however slight an extent, is, in the opinion of this Branch, unfit to be sold for the food of man."

That Tuberculosis, even in the early stages, affects the whole of the body is seen by the effect of consumption in the human patient on the skin and its exhalations; and that the bacilli themselves, or their spores, are present over the whole body of a tuberculous person, is gathered from the experiments of M. Dewèvre who found that 60 per cent. of the bugs in the bedstead occupied by a tuberculous patient were themselves affected with Tuberculosis, and not only yielded "magnificent cultures of intense virulence," but seem to have been the means of communicating phthisis to another person who afterwards for some time occupied the bed.

IT IS PRACTICALLY IMPOSSIBLE TO DETECT THE DISEASE WHEN THE MEAT IS CUT UP AND OFFERED FOR SALE.

This has already been proved so fully by what has preceded that it is unnecessary to do more than draw emphatic attention to it, and to the serious results that follow from it. When we are dealing with fruits or grains or vegetables we can ordinarily tell at a glance whether they are diseased or not, and we can cut out

the part which is not good and leave the remainder perfectly sound, because in such cases the spoiling commences from without and is not to be compared with that constitutional infection which causes the whole body to be in a *state* of disease, even before the local manifestation of it takes place.

When we come to tuberculous flesh we are in an entirely different position. It is a point of the utmost difficulty to determine whether or not there are bacilli, or spores of bacilli, present in a piece of flesh, owing to the difficulty of separating, staining and mounting such an infinitesimal speck out of the mass of matter in which it is existing. It is like seeking for a tiny cork in the great stream of a river. An instance of the extreme difficulty is shown by the doubt which still exists, after the most careful researches by the most skilful bacteriologists, as to whether bacilli are ever found in the foetus of a tuberculous animal, *i.e.*, in short, whether consumption is ever really *inherited*, by a child being born with the specific bacillus of consumption present at birth, or whether a child of consumptive parents is only born in a state of less ability to defend itself against the attacks of the bacillus coming later on and from without; or to reduce it still further, it is impossible absolutely to say whether or not the egg of a tuberculous fowl ever contains any bacilli or their spores.

So far they have never been discovered, but so difficult and delicate a question is it to determine their presence apart from their specific work in constructing giant cells or tubercles, that in spite of their not having been discovered, few careful scientists would be so bold as to say that they are never present.

What does this prove? Simply this; that in the earlier stages of the disease it is impossible to discover it by the naked eye, however carefully the whole body—carcase, internal organs and all—be examined, and that even with a microscopical examination of every inch of the dead animal it would be quite possible to be unable to detect the slightest sign of the presence of the dread parasite; that in a further stage it would be impossible to detect anything by a cursory inspection even of the lungs, but that a microscope would reveal the presence of tubercular growths, and then from these a skilled experimenter would be able to discover and demonstrate the presence of the specific bacillus; in a still further stage the lungs and pleura would show tubercular growth and deposit in a form so conspicuous that no one could fail to see and to shun such diseased organs, but even then—as witness the skilled evidence referred to under previous heading—it is not only impossible to discover this before the animal is killed (and so tuberculous animals get into the hands of the best as

well as the worst butchers), but it is impossible to detect it by an examination of the rest of the carcase when once the organs in which its work takes place are removed.

It is the tiny coral insect which builds the coral island, but if the coral islands were removed, it would be a task of incredible difficulty to discover a single coral insect in the surrounding ocean, even though myriads might be present, so in the same way when the comparatively immense structures of giant cells and tubercular nodules have been removed by stripping away the internal organs and the lining membranes, it may be set down as a practical impossibility even for a microscopist to discover the bacilli in the carcase, even though present—like the coral insect in the ocean—in myriads.

Any one with the slightest claim to intelligence may try and calculate for himself what chance there would be then, for a person with a naked eye inspection, to discover anything wrong with a joint of meat in a butcher's shop, or for an inspector in the same way going over hundreds of carcasses in a morning's round.

Let any one picture for himself the following experiment. Take a joint of meat and cut gashes all over it and puncture it in all directions and insert into the gashes and punctures, say, powdered chalk. Then let him try to get rid of every particle of this chalk dust by scraping

or stripping or wiping with the utmost care. Would he think it possible to succeed and be sure of not a single particle remaining, even though he could not find one with a microscope? When he has thoroughly grasped the impossibility of the task let him remember that the tiniest bit of chalk dust is a very boulder, in comparison to a bacillus, to say nothing of its comparison to one of the thousand spores which a single bacillus may contain, like ova in a salmon. Then let him confess that I have not exaggerated the case when I say that it is practically impossible to detect the disease when the meat is cut up and offered for sale.

TUBERCULOSIS IN MAN MAY THEREFORE BE SET DOWN AS ARISING IN A HIGH PERCENTAGE OF CASES FROM THE INGESTION OF TUBERCULOUS MEAT.

From the evidence step by step built up, I can draw no other conclusion than that Tuberculosis, which exists in the form of Consumption chiefly, and is manifested in other diseases in a lesser degree, is due in a great extent to the eating of flesh.

We have found that Tuberculosis exists in men, and that it is called "the scourge" of modern life. We have seen that it can be communicated to a man through the organs of alimentation from the food he eats. We have shown by evidence which cannot be gainsaid that the animals which at the present moment are being bred

and used for food, as well in America and Australia as in England, are diseased with this specific disease, to an extent undreamt of by the ordinary consumer of their carcasses.

The fact of cooking has been shown to be no complete remedy in the form it is practised and in which it will continue to be practised so long as it is used for the purpose of being a handmaiden to the palate. And finally, the inability to detect diseased meat is so startling that all the fancied security of inspection as it is now carried out is worse than useless, since it lulls people into the idea of security when no security exists, and so prevents their taking that one step which the impulse of self-preservation would otherwise impel them to do.

We are, therefore, face to face with the fact, which should, by its very seriousness, startle people into the consideration of their position. We are face to face with the fact that this national habit of ours of which we have been so proud, is at the root of the decay which is undermining the stamina of the nation.

I do not deny that in the earlier stages of our national life when men lived vigorous open air lives, and cattle ranged over the forests and commons, flesh-eating, from a hygienic point of view, was less harmful; for the cattle were not the bloated hulks of panting fat which are now the pride of our feeders and the delight

of our butchers at Christmastide, but were free and vigorous and healthy. So, too, the men, living an active, outdoor existence, suffered little from constipation, and more readily passed away this rapidly decomposing food from their bodies; but to-day the conditions are entirely changed, and if we fail to recognise this change in time and act upon it, John Bull and his boasted roast beef will become "Consumptive John" *through* this very consumptive roast beef—if, indeed, he has not to a very great extent become so already!

The outlook is a serious one, for a diseased people continuing in the course which caused the disease means a rapidly degenerating people, and though for a time—even for a century—this be averted by intermarriage with other races and bringing home fresh blood from other lands, yet none the less the cancer is slowly eating its way to the heart, and the only result can be that modern civilised races will follow in the wake of preceding civilised races, which, losing stamina, have lost the power of progress and even of cohesion and have been overwhelmed by other races, barbarous indeed, but not *effete*.

The great cause for alarm lies in the slavery of modern appetite, so that just as the old Byzantines cared little so long as the corn ships duly arrived, so to-day the cry which rises on all sides is just as foolish and equally as

fatal when it says, "we care nothing for your theories, we care nothing for the consequences, we *like* our bit of meat and as long as we can get it *we'll have it.*"

6. FLESH IS NOT A NECESSARY PART OF THE DIET OF MAN.

Had flesh food been *necessary*, then indeed, the only thing left to be done might have been to sit down and weep at the inexorable decree of nature which had ordained that man must be decimated by consumption whenever a country should become thickly populated. Then the best course would have been to agitate for a microscopic inspection of every carcase, and a total destruction by burning of all that were found diseased. But the adoption of this almost impossible course is obviated by the simple fact that flesh food is not necessary and that man can live better without it than with it.

The remedy, therefore, is so simple that the wonder is that so few either adopt it or advocate it. Since a great amount of consumption arises from flesh-eating, and since flesh-eating is not necessary, this terrible leakage of life can be remedied at once by abstaining from eating flesh.

It is quite true that all men cannot live on the same food, and that what suits one man is almost poison to another, but none the less the great broad fact exists that in the enormous range of fruits, grains, nuts, pulses, leaves, roots and succulent stems, there is to be found

nutriment ample and varied enough to suit every palate and every personal idiosyncrasy.

It may require some little trouble to find out what is best suited to each, but in a matter of life and death the question of a little trouble hardly deserves to find a place.

The point which is of the utmost importance to repeat again and again until it begins to be hammered into the consciousness of the people is that CONSUMPTION IS LARGELY CAUSED BY THE EATING OF FLESH. When this fact is accomplished and this lesson learned, there will be some chance of pressing forward to the solution of the question of how we shall banish this disease altogether from our midst.



[For "The Treatment of Consumption," see Part II. Price One Shilling.]

Appendix.



LET me now touch upon a few practical thoughts as to what I would propose with regard to the flesh which is discovered to be diseased. I maintain that it is unfair to put butchers under the terrible burden of bearing all the loss resulting from the condemnation of diseased meat. It is really penalising a profession when it attempts to be honest, for if a butcher through no fault of his own finds when he has got a "beast" home that its lungs are diseased or liver affected—and this is such a very common occurrence that it is thought nothing of—and lets it be known, what is the result?

(a) He has to bear the loss of the beast, for there is no source whence compensation may be obtained. (b) All who hear about it at once shun his shop as being that of a man who keeps diseased meat, so that the premium is put upon concealment, and the best thing a butcher can do from a business point of view is to say nothing but quietly sell the meat and run the risk—which by the way is a very slight one—of its being discovered. Under the present system we can expect nothing better than what exists, viz. : some 60 per cent. to 70 per cent. of the meat sold being diseased. The community is the great loser by an enormous increase of disease, and therewith of pain, misery, poverty and death; let the community, therefore, face the problem and institute a central slaughter-house in every district, in which every beast must be slaughtered, and every beast examined by a skilled and well paid officer appointed for this most important duty. Every beast found diseased with any infectious disease (and among infectious diseases Tuberculosis should stand first), should be at once condemned and no part allowed to be consumed for food, and in every such case a fair compensation should be paid to the owner.

THE gist of the argument laid down in the preceding pages formed the subject of a paper which I read at the Congress of the Sanitary Society held at Portsmouth in September, 1892, under the section of Preventive Medicine, and the objections there advanced may well be shortly answered here.

SIR CHARLES CAMERON raised this difficulty. If, he argued, Tuberculosis in man arises from eating tuberculous flesh, how is it that animals (*e.g.*, cows) who never taste flesh, suffer very severely from the same disease?

This argument, plausible on the face of it, really leads to an absurdity and also contains a hidden fallacy.

If it be true that because man gets tuberculosis from eating the flesh of tuberculous animals, that therefore they too must get it from eating the flesh of other tuberculous cattle and so on, we must eventually come to the first animal, and since he couldn't get it from eating a previously diseased animal (because by hypothesis this is the first animal) he could not—by Sir Charles Cameron's reasoning—have the disease; but by the chain of the same reasoning, he must have the disease, otherwise the animal which ate his flesh could not have it, therefore he both has the disease and does not have it, which is absurd; therefore either the hypothesis or the argument is absurd.

The absurdity lay in the fallacy which Sir Charles Cameron ought to have been acute enough to see through.

I brought evidence to prove that Tuberculosis in man could and did arise from the ingestion of the flesh of tuberculous animals.

This cannot be so, replies Sir Charles Cameron, because if so, cattle could only get it in the same way, *i.e.*, by eating tuberculous flesh, and since they do not eat flesh and yet get tuberculosis, therefore man does not so get it; as if I had been arguing that this was the *only* way by which tuberculosis arises in man!

Cattle, doubtless, get tuberculosis owing to unnatural conditions which predispose them to disease, and these unnatural conditions are:—Stall-feeding. Badly ventilated cowhouses. Continuous draining away of their strength by milking them daily. Feeding them on food which promotes *quantity* of milk, irrespective of *quality*; and finally from the sputa of other tuberculous cows which dribbles down on to the food and is then eaten, or on to the floor, there dries, and then rises and attaches itself to fresh food which is brought in and so gets

eaten in this way, and by this means even cattle get tuberculosis by ingesting the bacillus tuberculosis with their food.

SIR THOMAS CRAWFORD pointed out in his criticism of the paper that he believed that want of fresh air was a great cause of consumption, and his experience of barrack life, was, that consumption had greatly decreased with increase of ventilation.

This I freely acknowledge, but it does not touch the question whether the eating of flesh food is not also a cause and a great factor in originating consumption.

Fresh air is an essential of a healthy life, but alone it is not sufficient, pure food is needed also. Consumption exists even amongst those classes of our community whose lives are almost wholly spent in the open air.

PROFESSOR RUFFER attached great importance to milk as being the chief factor, as far as food is concerned, in originating tuberculosis.

This but emphasises my own position, for if the *milk* of the animal be diseased it follows that the animal *itself* must be previously diseased; and moreover, milk can always be thoroughly boiled, but flesh though it *could* be boiled for as long and as thoroughly, would thereby be greatly spoiled for the table; and when roasted, the heat to which the interior is exposed is often not enough to destroy bacterial life.

DR. SYKES advocated the use of great public apparatuses wherein the suspected flesh should be subjected to steam at a very high temperature.

This would doubtless destroy all living organisms, but would probably so interfere with the flavour that it would be insipid and tasteless, and even if it were not, I maintain that buyers should be protected from incurring such risks unwittingly by enforcing the attachment of a placard (*e.g.*, suffering from "CANCER," "CONSUMPTION," "GLANDERS," "ANTHRAX," "FEVER,") etc, to such boiled flesh, specifying the nature of the disease from which the animal had suffered or from which it had died, (for such a mode of treatment would be applicable to beasts which had died as well as to those which had been killed).

Even this would not remove danger, because it seems impos-

sible to detect tuberculosis in an animal by merely casual inspection and unless *all* carcasses were subjected to this treatment the risk would still remain. For the detection of tuberculosis a microscopic examination is necessary and this is impossible.

The only conclusion to which I am drawn, therefore, is that the existing state of the disease amongst animals slaughtered for food makes the only safe course in order to avoid obtaining consumption and other tuberculous diseases, to be, total abstinence from flesh as food.

At the same time, every effort should be made to enforce a rigorous examination as far as possible of every animal slaughtered; there should further be—abolition of private slaughterhouses, substitution of central abattoirs, destruction of all diseased carcasses, and full compensation to the owner of the same out of the public funds.

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